CLAIMS:

1. A camera module (10) which comprises a housing (1) that contains a solid-state image sensor (2) with a radiation-sensitive surface (3), and an optical element (4) located above the solid-state sensor (2) and which forms a shield against laterally scattered radiation to protect the radiation-sensitive surface (3) and comprises a disk-shaped body with a primary radiation-opaque area and a secondary radiation-transparent area located within the primary area, which secondary area is located above the radiation-sensitive surface (3) of the sensor (2) and of which a surface close to the sensor is smaller than a surface remote from the sensor, characterized in that the optical element (4) comprises at least one plate (40) of transparent material two sides of which are covered with a layer (41,42) of radiation-opaque material, in which plate an aperture is defined in which the aperture in the layer (41) deposited on a side of the at least one plate (40) close to the sensor (2) has a smaller surface area than the aperture in the layer (42) on a side of the at least one plate (40) remote from the sensor (2) and in which the primary and secondary areas are defined by portions of the transparent plate (40) sandwiched between the opaque layers (41,42) and the apertures therein, respectively.

2. A camera module (10) as claimed in claim 1, characterized in that the optical element (4) comprises a single transparent plate (40) whose upper and lower surfaces are both covered with a radiation-opaque layer (41,42) in which circular and concentric apertures are provided.

3. A camera module (10) as claimed in claim 1 or 2, characterized in that the optical element (4) comprises two or more transparent plates which are separated from each other and of which at least one side is covered with a radiation-opaque layer in which an aperture has been defined and whereby the circumferences of the apertures are substantially located on a cone.

4. A camera module (10) as claimed in claim 1, 2 or 3, characterized in that the transparent material comprises a glass or a synthetic material.

5. A camera module (10) as claimed in one or more of the aforementioned claims, characterized in that the opaque layer (41,42) is made of blackened metal.

6. A camera module (10) as claimed in one of the aforementioned claims, characterized in that the housing (1) comprises a further optical component in the form of a lens (5) which is also located above the radiation-sensitive surface (3) of the sensor (2) and which is formed in a further transparent plate (50).

7. A mobile telephone or personal digital assistant provided with a camera module as claimed in one of the aforementioned claims.

8. A method for the manufacturing of a camera module (10), which module comprises a housing (1) that contains a solid-state image sensor (2) with a radiation-sensitive surface (3), and an optical element (4) located above the solid-state sensor (2) and which forms a protective shield against laterally scattered radiation to protect the radiation-sensitive surface (3) and comprises a disk-shaped body with a primary radiation-opaque area and a secondary radiation-transparent area located within the primary area, which secondary area is located above the radiation-sensitive surface (3) of the sensor (2) and of which a surface close to the sensor (2) is smaller than a surface located remote from the sensor, characterized in that the optical element (4) is defined by at least one plate (40) of transparent material in the housing (1) above the sensor (2), of which two sides are covered with a radiation-opaque layer (41,42) which are provided with an aperture, in which the aperture in the layer (41) on a side of the at least one plate (40) close to the sensor (2) has a smaller surface than the aperture in the layer (42) on a side of the at least one plate (40) remote from the sensor (2), and in which the primary and secondary areas are defined by portions of the transparent plate (40) which are sandwiched between the opaque layers (41,42) and the apertures therein, respectively.

9. A method as claimed in claim 8, characterized in that a plurality of optical elements (4) and, if required, a plurality of further components such as a lens (5) are formed in a first stack (S1) of disk-shaped bodies, and a plurality of solid-state image sensors (2) are formed in a second stack (S2) of disk-shaped bodies, in which the electrical connections of the solid-state image sensors (2) extend to the lower side of the second stack (S2) and part of

the first stack (S1) is deposited on each image sensor (2), after which individual camera modules (10) are obtained by separating the second stack (S2) of image sensors (2) by means of a dicing operation.

10. A method as claimed in claim 9, characterized in that the second stack (S2) is separated into individual elements each with its own image sensor (2) by means of a first dicing operation, which elements are deposited on the first stack (S1) using a pick-and-place machine prior to the separation of the first stack (S1) by means of a second dicing operation.

11. A method as claimed in claim 9, characterized in that the first stack (S1) is aligned with and mounted on the second stack (S2) and the optical elements (4), any additional optical components (5) and the image sensors (2), are separated via a single dicing operation.

12. A method as claimed in claim 9, 10 or 11, characterized in that the second stack (S2) is deposited on a film (80) during the dicing operation and, after dicing up to the film (80), the grooves (8A) between the individual image sensors (2) formed by this operation and the grooves (8B) - either formed by dicing or otherwise – which are located between individual optical elements (4) and any further optical components (5) are filled with an electrically insulating synthetic material (7), after which this synthetic material (7) is diced with a dicing saw having a smaller saw cut and the individual camera modules (10) covered with an electrically insulating shell (7) are removed from the film (80).